

UNSTEADY FREE CONVECTION MHD FLOW PAST AN INFINITE POROUS VERTICAL PLATE

KALIDAS DAS AND S. JANA

Abstract

This paper investigates the influence of the Joulean heat dissipation on the unsteady free convection flow of a viscous, electrically conducting fluid through a porous medium, past an infinite vertical porous plate with constant suction and heat absorbing sink in presence of a constant transverse magnetic field. The problem is solved analytically using multi-parameter perturbation technique for velocity and temperature fields, mean sink friction and mean rate of heat transfer. The results obtained have been presented numerically through graphs and tables to observe the effects of various parameters.

Key Words: MHD, Thermal Energy, Porous medium, Unsteady, Sinks, Suction, Perturbation technique

2000 Mathematics Subject Classification : 76W05